

Prepare your manuscript

Format and style

Manuscript text must:

- be in English or French
- be double-spaced
- be single-column
- include page numbers
- include continuous line numbers
- be 8.5 x 11 inches in page size (or ISO A4)
- follow this order: title page, abstract, keywords, body text (Introduction, Materials and methods, Results, Discussion), acknowledgements, and references (Tables, figures, figure captions and appendices may be uploaded separately or within the manuscript file)

Abbreviations and acronyms

Define abbreviations and acronyms when they are first mentioned in the text.

Footnotes

In body text, try to avoid footnotes. If unavoidable, cite footnotes using superscript Arabic numbers (^{1,2,3}), in order of appearance (starting with the title page), and include the footnote at the bottom of the page on which it is cited. Do not include footnotes in the reference list.

In tables, cite footnotes using symbols (in the order *, †, ‡, §, ||, ¶, #) or superscript lowercase italic letters (^{a,b,c}).

Mathematical expressions

- Identify equations by calling out with numbers in parentheses placed flush with the left margin (for the *Canadian Journal of Physics*, place on the right).
- A letter or symbol should represent only one entity and be used consistently throughout the paper.
- Each variable (including those representing vectors, matrices, and tensors) must be clearly identified and defined in the text.
- Supply complex equations in an editable format by using LaTeX or a math editor (MathType).
- Supply simple, inline equations in Word, without using MathType. Insert symbols from Word's "Symbol" palette, using "normal text" or "Symbol" fonts only. Insert symbols using MathType ONLY if they cannot be found in the "Symbol" palette under one of those two fonts.

Reporting guidelines

Study reporting guidelines can help authors report their work transparently and accurately. We encourage their use. Up-to-date guidelines can be found at the [EQUATOR Network](#), where authors can [search](#) or [consult the GoodReports wizard](#) to identify which guideline(s) to use. A completed copy of the guideline checklist may be submitted with the manuscript as a Supplementary file.

Spelling

Spelling should follow that of *Webster's Third New International Dictionary* or the *Oxford English Dictionary*. Authors are responsible for consistency in spelling.

Statistical analyses

The assumptions and (or) the model underlying any statistical analysis should be clearly stated. Do not use symbols such as * and ** to denote levels of significance unless accompanied by actual *p* values.

Units of measure

Use SI units of measure ([Système international d'unités](#)). If non-SI units are used, at first mention, supply the equivalent in SI units in parentheses.

Artificial intelligence

Authors are responsible for ensuring the integrity and factual accuracy of their work and for appropriate attribution of all sources.

- Verify all outputs of generative artificial intelligence (genAI) tools used in the research and in production of the article.
- At submission, disclose all use of AI-assisted tools in the article, including the name and model/version of the tools.
 - Writing assistance and language improvement should be described in the Acknowledgements.
 - Use of tools to design or conduct research must be described in the Methods. We encourage authors to include input prompts and AI outputs as supplementary files.
- Cite all sources, ensuring the reference list is complete and accurate, and that tools used have not reproduced substantial portions of other people's work amounting to plagiarism of text and images.
- Regarding article figures: GenAI may not be used to create or alter illustrations and photos (including micrographs and radiographs) but may be used to create figures based on original data so long as its use is described in the text.
- AI tools may not be listed as authors.>

Editors may reject manuscripts if AI-assisted technologies are used inappropriately or used but not declared.

See our [full policy on appropriate and inappropriate use of generative AI in research and publishing](#).

Parts of the manuscript

(Check requirements for journals that use [double-anonymous peer review](#))

Title page

Title

Should be accurate, informative, and brief. Include keywords in the title to optimize search engine discovery.

Author list

List all author names on the title page: check author order, spelling, capitalization, initials, and hyphens.

- Format names as: first name (or initial) middle name (or initial) last name (surname/family name).
- List affiliation(s) for each author that include: institution (department and university or organization), city, state or province, country. An author's affiliations should reflect where the research was conducted. If an author changes institution, the new affiliation can be listed in a footnote.
- Do not include academic degrees and professional titles.

Authorship criteria: We subscribe to the [ICMJE definition of authorship](#) in most cases. Any person listed as an author must meet each of these authorship criteria, and anyone who meets these authorship criteria must be listed as an author. Contributors who do not meet authorship criteria should be listed in the Acknowledgements section. Exceptions to our definition of authorship may exist for community-engaged research projects; please see our [Publishing Policy](#) for authorship and attribution options. Generative AI tools do not qualify for authorship and cannot be included in the author list.

Corresponding author

Clearly identify the corresponding author and their email address on the title page. The corresponding author is designated to receive post-publication queries from readers.

Note that authors may supply their ORCID iD on submission; these identifiers are not required on the title page itself.

Abstract

Provide the abstract in the manuscript text file on page 2, after the title page. Authors must supply their abstract in English and/or French. (Note that CSP plans to accommodate author-provided abstract translations in other languages in the future.)

The abstract should be a single paragraph that summarizes the article. It helps readers decide whether to keep reading. Briefly describe the study rationale, objectives, methods, findings, and impact. Use keywords (and their plain-language synonyms) in the abstract to optimize search engine discovery. Do not include headings, reference citations, tables, figures, or acronyms.

Keywords

List keywords after the abstract. Good keywords are common to your field and accurately describe your topic. Use keywords in the title, abstract, and manuscript text to optimize search engine discovery. (Consider what words you would enter in a search box to find your work online.)

Graphical abstract

(Optional) Authors are encouraged to submit an illustration, diagram, equation, or other informative visual that explains the central message of the article and entices readers. The maximum allowable size is 40 mm (150 pixels) high by 85 mm (320 pixels) wide. Graphical abstracts appear online only.

Main body of the article

Introduction

In 1–3 paragraphs, explain the study rationale and objective(s).

- What is the problem, and why is it important?
- What is known on the topic? Establish context: provide background, briefly review the key literature, and mention existing gaps or controversies in the field.
- What is the overall aim of the study? State your research question, hypotheses, and predictions.

Materials and methods

Describe what you did (and how you did it) clearly and comprehensively enough for the study to be replicated.

- Include as appropriate the study design; primary and secondary outcome measures; computational, experimental, and statistical methods; materials; locations.
- Specify materials used (e.g., laboratory or field equipment, chemicals, biologic materials, software) and their sources (provide company name, city, and country in parentheses). This includes reporting the use of AI tools to design or conduct research (e.g., developing the study question; collection and/or analysis of data; generating tables, figures, or computer code). We encourage authors to include input prompts and AI outputs as supplementary files.

Use of AI tools to design or conduct research must be described in the Methods (e.g., developing the study question; collection and/or analysis of data; generating tables, figures, or computer code). We encourage authors to include input prompts and AI outputs as supplementary files.

Ethics approval

Information about Ethics Approvals should be reported in the Materials and methods section (usually the first paragraph).

For studies involving human participants:

- name the institutional ethics review committee that approved the study; and
- confirm that participants gave informed consent before participating in the study.

For studies involving animals:

Studies involving animals specifically, vertebrates and cephalopod class invertebrates, including free-living and reproducing larval forms, must comply with internationally accepted standards, regulations, and guidelines, and be conducted with the highest regard for animal welfare.

In the **Materials and Methods**, supply an ethics statement with details on regulatory compliance, ethics approvals, and permits from the relevant jurisdictional authorities (both home institution/country and study site, if different).

- **Ethics approval is required before conducting research involving animals.** Name the authority (institutional animal care and use committee, institutional review board, or country-specific equivalent) that approved the study and provide the approval number and date of approval. If ethics approval was waived or not sought, explain the reason(s).
- State the **animal care guidelines and regulations** that were followed during the study.

Sample ethics statement:

"Ethics approval was obtained from [FULL NAME OF INSTITUTIONAL ANIMAL CARE AND USE COMMITTEE (APPROVAL NUMBER)] before starting the study. The study was conducted in accordance with [NAME OF ANIMAL CARE REGULATION OR GUIDELINE]."

- **Permits for field and observational work** must be obtained before conducting the research. Name the authority that provided permits/approvals. If none were obtained, explain the reason(s).
- **For work conducted in a country or community that is different from the authors' home institution** and that involves research with animals (including samples or specimens and field or observational work), please also name the local authority that provided ethics approval and/or permits. Depending on the nature of the reported work, editors may also ask for a [community involvement statement](#) in the manuscript.

In the Materials and Methods, provide detailed information about animals used in the study, standards of care, steps taken to minimize animal distress, and the fate of the animals at the end of the study, e.g.:

- species, number, sex, age, weight;
- source of animals used in the study (e.g., purchased, purpose-bred, privately owned, wild-caught, random sourced like fish from a bycatch or shelter animals);
- method of capture for wild caught animals;
- housing and husbandry;
- products administered to or used on the animals (e.g., drugs, feeds, devices);
- surgical procedures and other interventions;
- pain and stress management (anesthetic/analgesic/tranquilizing agents);
- predetermined experimental endpoints (for mortality endpoints, describe the rationale and plan/criteria for determining the endpoint);
- **method of euthanasia** for studies that use death as an endpoint. The method must align with the [AVMA Guidelines for the Euthanasia of Animals](#); Appendix 1 lists acceptable agents and methods by species, and Appendix 2 lists agents and methods that are unacceptable.

For research that involved the collection of biological material taken from animals, include location, date, and environmental factors relevant to the collection of specimens in the Materials and Methods. Authors are encouraged to make these data available in a publicly accessible data repository and provide the data accession number.

Authors are also encouraged to

- describe how the [3Rs of ethical animal research](#) (replacement, reduction, and refinement) informed their study design; and
- use a reporting guideline to enhance the transparency and reproducibility of their work (editors may request a completed reporting checklist as a part of the peer review process; **please consult journal-specific guidelines for more information**).
- Animal *in vivo* studies: [ARRIVE 2.0](#) and [full ARRIVE checklist](#)
- Animal observational studies: [STROBE-Vet](#) and [STROBE-Vet checklist](#)
- Randomized controlled trials for livestock and food safety: [REFLECT](#) and [REFLECT checklist](#)

Editors reserve the right to subject articles to additional ethics scrutiny as warranted, e.g., work from jurisdictions with no regulatory or ethics oversight for animal research or whose practices are far outside internationally accepted norms, work involving [vulnerable or endangered species](#), work conducted on a location of cultural significance to partner Indigenous communities.

For studies involving collection of specimens:

- confirm that research involving collection of specimens was conducted in accordance with all applicable laws, guidelines, regulations; and
- if permits were required for fieldwork, supply the research permit and (or) license numbers.

Results

Report results that are directly relevant to your research question. Raw data and other observations may be submitted with the manuscript as Supplementary files or uploaded to a recognized data repository.

- Use subheadings, tables, and figures to organize and communicate your findings.
- Begin sections and (or) sentences with high-level observations, followed by statistical data.
- State the statistical tests used (if applicable), and when reporting numbers:
 - define the values provided (e.g., mean and standard deviation or standard error, median, and interquartile range), and
 - include the absolute value of *N* when describing frequencies (i.e., percentages, proportions, ratios).

Discussion or Conclusion

Compare your findings with previously published work; include points of agreement and difference. Describe the limitations and main contributions of your work. Propose avenues of future study. Speculation should be clearly identified and based on observations related to the manuscript.

Author statements

Acknowledgements

(Optional) The names and contributions of institutions and people who contributed to the work but do not meet authorship criteria may be listed in the Acknowledgements section. This section should be written in the third person. Authors are responsible for ensuring that people named in the Acknowledgements agree to be named. If AI technology was used for writing assistance or language improvement, the name of the AI tool and how it was used should also be described in the Acknowledgements (e.g., translation, drafting, summarizing, paraphrasing, correcting spelling and grammar).

Competing interests statement

Authors are responsible for disclosing all financial and non-financial relationships that might bias or be seen to bias their work. Supply a statement of competing interests during submission. Authors who are unsure what to list may wish to consult the [ICMJE form for disclosure of competing interests](#).

- If there is nothing to declare, the statement should read: "Competing interests: The authors declare there are no competing interests."
- If there are competing interests to declare, specify authors by full name. Statements should take the form of "Competing interests: AUTHOR is an employee and shareholder of COMPANY. AUTHOR has received speaker fees and travel honoraria from COMPANY."

Author contribution statement

Supply an author contribution statement, identifying authors by their initials and specifying contributions using the [Contributor Roles Taxonomy \(CRediT\)](#) roles as selected for each author in the peer-review system during submission.

Community involvement statement

(Optional) For studies involving Indigenous communities or community-engaged research, authors may supply a community involvement statement that describes how the community was involved throughout the research process and how the study benefits the community. For guidelines on what to include in the statement and how to transparently report other features of the project in the article, refer to our [community-engaged research page](#).

Funding statement

Supply a funding statement that lists what support the authors received to carry out the research.

- If the study was unfunded, state “Funding: The authors declare no specific funding for this work.”
- If the study received funding, include each funding agency name written out in full, followed by its grant or award number in parentheses. E.g., “Funding: This research was supported by FUNDING AGENCY NAME (grant No. ###).”

Data availability statement

Supply a data availability statement that says whether any, all, or portions of the data underpinning the work are available to others.

- If data are available, specify how data can be accessed and under what conditions data can be reused. Supply repository name, persistent unique identifier (PID: DOI/compact identifier/accession number), and web link.
- If data are not available, explain why (e.g., describe the ethical, legal, or commercial restrictions).

For complete instructions, see [How to write a data availability statement](#).

References

See journal-specific guidelines for information on preferred citation style. Note the following:

- **Unpublished reports, private communications, and submitted manuscripts** do not belong in the reference list. Include them as footnotes or parenthetically in the body text, e.g., (J. Jones, personal communication, 2010).
 - **Books and articles that are in press** (accepted but not yet published) should be cited in text and included in the reference list.
 - **Publicly available datasets** should be cited in text and included in the reference list (see [How to cite datasets](#)).
-

Tables and Figures

In general:

- Cite each figure and table, and name them in order of first appearance in the text (Figure 1, Figure 2, Table 1, Figure 3, Table 2, etc.).
- Figures and tables should add information to the article, not duplicate results that are (or could be) explained briefly in the text.
- Figures and tables should be understandable without having to read the article. Any abbreviations or symbols used should be defined in the caption (figures) or in the Note (tables).

Table specifications:

- Supply tables in an editable format, i.e., Word (table function in DOC or DOCX) or Excel (spreadsheet in XLS or XLSX). Each data point should be in a separate cell.
- Provide a table caption (e.g., Table 1. Xxx).
- Footnotes should be designated by symbols (order: *, †, ‡, §, ||, ¶, #) or superscript lowercase italic letters (^{a,b,c}).
- Use a Note under the table for additional information.

Figure specifications:

See [How to prepare figures](#) for figure specifications and guidance.

- There are specific reporting requirements for [Western blots/immunoblots and gels](#).
- GenAI may not be used to create or alter illustrations and photos (including micrographs and radiographs) but may be used to create figures based on original data so long as its use is described in the text.

A caption explains how to read a figure, independent of the article text. Follow the guidelines below:

- Terms, abbreviations, and symbols used must be defined and correspond with those in the text.
- List tools and settings used for image capture.
- Maps: captions must credit all sources used to produce the map: base map if used (e.g., [Google Map attribution guidelines](#)), and data plotted on the map (e.g., geological units and contacts, shape file data, boundary file data, data from other studies). List map projection (e.g., NAD83) and coordinate system (e.g., UTM) used, if applicable.
- Include a permission statement for figures adapted, modified, or republished from elsewhere. Upload a copy of your permission from the original copyright holder with your files, or send by email to the journal editorial office.

Appendices

An appendix should be able to stand alone, as a separate, self-contained document. Figures, equations, and tables used in an appendix should be numbered sequentially but separately from those used in the main body of the paper, e.g., Fig. A1, eq. (A1), Table A1.

Supplementary files

Supplementary files consist of extra tables, figures (maps), detailed calculations, and data sets produced by the authors as part of their research, but not essential for understanding or evaluating the manuscript.

- Number figures, equations, and tables in a supplementary file sequentially but separately from the numbering used in the manuscript (e.g., Fig. S1, eq. S1, Table S1).
- Cite supplementary files in the manuscript in a footnote.
- During submission, use the “Supplementary Material” file designation when uploading supplementary files.
- Supplementary files are not edited or converted and, therefore, will appear exactly as submitted.
- Supplementary files should be named by manuscript number followed by “suppla”, “supplb” etc. e.g., APNM-2019-0401suppla.

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